SSC
Automatic Train Protection

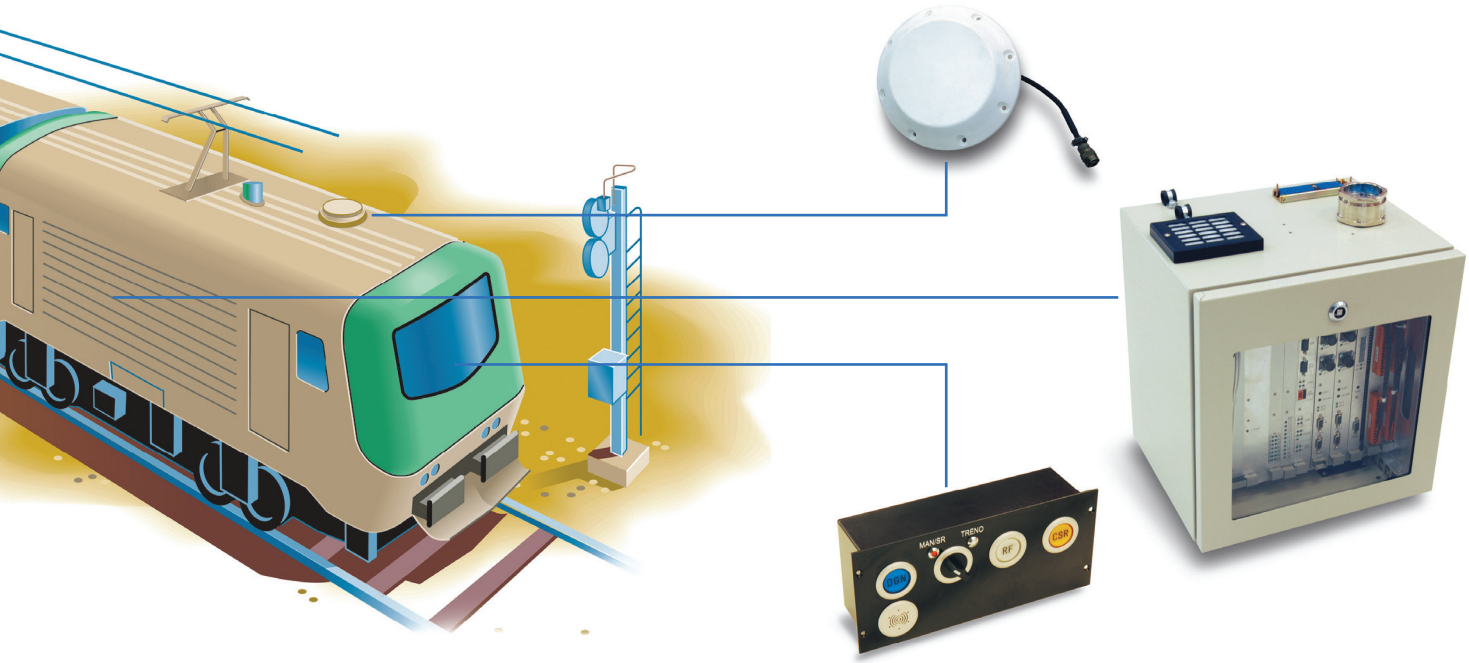
GE Transportation's SSC Automatic Train Protection delivers safe, cost-effective operation and easy installation, without changing driving rules. This advanced train protection system offers an innovative and unique design on track-to-train data transmission for train control.

Unlike other solutions, deploying GE Transportation's SSC Automatic Train Protection does not require devices or cables mounted in the track area. Its wayside components are mounted line side, deriving their power from the existing signals, eliminating the need for new power cables.

Consequently, installation on an existing infrastructure is simple and quick, with minimal traffic disruption.

SSC Automatic Train Protection is an overlay spot train protection system that uses microwave technology to transmit signal and track information to the train. By enforcing them, SSC Automatic Train Protection can maintain the existing operating rules without requiring a massive re-training of railway staff.

Its modular design also allows optimizing the line's performance while improving safety.



GE imagination at work

SSC Automatic Train Protection Components

This system has two main components: wayside and on-board units.

The wayside subsystem is overlaid on the existing infrastructure and is designed to minimize installation costs and deployment time. Safe track-to-train transmission occurs at signal locations via a low-power microwave channel.

The SSC Automatic Train Protection's on-board unit equipment is a fail-safe supervision system with minimal impact on the driver's operations.

Wayside equipment

Wayside components are installed at the side of the line, typically one unit for each signal of the infrastructure.

The wayside consists of one encoder and one transponder antenna, both with very low power consumption, allowing them to safely be powered by the signal lamps.

The wayside equipment including the transmission device (i.e. transponder) can be installed entirely on the signal pole, reducing costs for installation, eliminating the need to stop traffic for both installation and maintenance, and increasing vandal resistance.

The wayside transmits the signaling status to the on-board unit through microwave track-to-train link. At each point of information, SSC Automatic Train Protection provides the applicable speed level for the line stretch after the signal.

On-board equipment

SSC Automatic Train Protection's on-board equipment continuously ensures the movement authority is enforced with respect to the signaling status and speed information received from the wayside. Otherwise, the driver receives a warning, and ultimately, braking is enforced if the train driver fails to obey the warning. Train braking is also enforced when a signal at danger is passed (SPAD protection).

The on-board also checks if any track-to-train transmission is missed due to a distance-based linking function.

SSC Automatic Train Protection's on-board unit is fast and easy to install and maintain, with no device mounted under the rolling stock.

Radio infill

The system's innovative radio infill function augments the performances of the discontinuous automatic train protection.

It guarantees:

- Required running capacity
- Maximum speed limits applied even in those stretches of lines with impaired visibility (e.g. excessively short visibility distances)
- Prompt reaction to signal aspect change

The radio infill function can be limited to those signals that require continuous information to the train in advance so there is no need for full radio coverage of the line.

Standards compliance

GE Transportation's SSC Automatic Train Protection complies with the most recent and demanding European standards: CENELEC 50126, 50128, 50129 and 50159. SSC is CENELEC SIL-4.

Environment: CENELEC 50125, 50155 (trackside part designed to -40°C to +85°C range).

To learn more,
visit www.getransportation.com.

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